

What is claimed is:

1. A method of forming an in-situ filter for controlling flowback of proppants injected into a fracture of a subterranean formation comprising the step of injecting an expandable member into the fracture.
2. The method of forming an in-situ filter according to claim 1 further comprising the steps of compressing the expandable member and inserting it into a mass of a fibrous network.
3. The method of forming an in-situ filter according to claim 2 further comprising the step of placing the compressed expandable member and fibrous network into a mold cavity.
4. The method of forming an in-situ filter according to claim 3 further comprising the step of injecting an aqueous soluble mixture into the mold cavity.
5. The method of forming an in-situ filter according to claim 4 further comprising the step of curing the aqueous soluble mixture until it forms a solid structure, which encapsulates the compressed expandable member and fibrous network.

6. The method of forming an in-situ filter according to claim 5 further comprising the step of removing the solid structure containing the compressed expandable member and fibrous network from the mold cavity.

7. The method of forming an in-situ filter according to claim 6 further comprising the step of mixing the solid structure containing the compressed expandable member and fibrous network with a proppant slurry.

8. The method of forming an in-situ filter according to claim 7 further comprising the step of injecting the mixture of the solid structure containing the compressed expandable member and fibrous network and the proppant slurry into the fracture.

9. The method of forming an in-situ filter according to claim 8 further comprising the step of dissolving the soluble mixture forming the solid structure after the expandable member has been injected into the fracture thereby releasing the expandable member from the compressed state, which together with the fibrous network form the in-situ filter.

10. An in-situ filter for controlling flowback of proppants formed in a fracture of a subterranean formation comprising a network of fibrous material and a plurality of interspersed expandable members.

11. The in-situ filter according to claim 10 wherein the fibrous network comprises materials selected from the group consisting of stainless steel wool, a composite fibrous sponge and combinations thereof.

12. The in-situ filter according to claim 10 wherein the expandable members comprise springs selected from the group consisting of a torsion spring, a compression spring, an open coil spring, a helical spring and a clock spring.

13. The in-situ filter according to claim 12 wherein the springs are clock springs and a plurality of elongated members are attached at one end to each clock spring.

14. The in-situ filter according to claim 13 wherein an other end of the plurality of elongated members are anchored by, and attached to, a ball.

15. The in-situ filter according to claim 14 further comprising a flexible filter sheath attached to each spring and associated elongated members.

16. The in-situ filter according to claim 13 wherein the elongated members are formed of a material selected from the group consisting of a stainless steel wire and a composite polymer.

17. The in-situ filter according to claim 15 wherein the flexible filter sheath is formed of a stainless woven wire cloth having a mesh size greater than 60-mesh.

18. A system for controlling flowback of proppants injected into a fracture of a subterranean formation comprising a plurality of encapsulated compressed expandable members placed in the fracture adjacent to a wellbore formed within the subterranean formation.

19. The system for controlling flowback of proppants according to claim 18 wherein a mass of fibrous material is encapsulated with the compressed expandable members.

20. The system for controlling flowback of proppants according to claim 19 wherein an aqueous soluble mixture comprising a filler material is encapsulated with the compressed expandable members.

21. The system for controlling flowback of proppants according to claim 20 wherein the filler material comprises glycerin, wintergreen oil, oxyzolidine oil and water.

22. The system for controlling flowback of proppants according to claim 20 wherein the aqueous soluble mixture further comprises an adhesive.

23. The system for controlling flowback of proppants according to claim 22 wherein the adhesive comprises collagen.

24. The system for controlling flowback of proppants according to claim 20 wherein the aqueous soluble mixture dissolves under downhole conditions causing the

compressed expandable members to be released from the encapsulated state and expand to form an in-situ filter in the fracture adjacent to the wellbore.

25. The system for controlling flowback of proppants according to claim 24 wherein the aqueous soluble mixture dissolves in approximately 3 to 8 hours.

26. The system for controlling flowback of proppants according to claim 24 wherein the aqueous soluble mixture dissolves in temperatures greater than approximately 55 °C.

27. The system for controlling flowback of proppants according to claim 18 wherein each of the compressed expandable members comprises at least one spring selected from the group consisting of a torsion spring, a compression spring, an open coil spring, a helical spring and a clock spring.

28. The system for controlling flowback of proppants according to claim 27 wherein the springs are clock springs and a plurality of elongated members are attached at one end to each clock spring.

29. The system for controlling flowback of proppants according to claim 28 wherein the other end of the plurality of elongated members are anchored by, and attached to, a ball.

30. The system for controlling flowback of proppants according to claim 29 further comprising a flexible filter sheath attached to each spring and associated elongated members.

31. The system for controlling flowback of proppants according to claim 28 wherein the elongated members are formed of a material selected from the group of a stainless steel wire and a composite polymer.

32. The system for controlling flowback of proppants according to claim 30 wherein the flexible filter sheath is formed of a stainless woven wire cloth having a mesh size greater than 60-mesh.